

# UNITED STATES SIGNAL SERVICE

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### ○ INTRODUCTION.

This REVIEW is based on reports for December, 1890, from 2,401 regular and voluntary observers. These reports are classified as follows: 171 reports from Signal Service stations; 118 reports from United States Army post surgeons; 1,558 monthly reports from state weather service and voluntary observers; 31 reports from Canadian stations; 184 reports through the Central Pacific Railway Company; 339 marine reports through the co-operation of the Hydrographic Office, Navy Department; marine reports through the "New York Herald Weather Ser-

vice;" monthly reports from the local weather services of Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa Weather and Crop Service, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Meteorological Report of the Missouri State Board of Agriculture, Nebraska, Nevada, New England, New Jersey, New York, North Carolina, North and South Dakota, Ohio, Oregon, Pennsylvania, Tennessee, Texas, and Wisconsin, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

### ○ CHARACTERISTICS OF THE WEATHER FOR DECEMBER, 1890.

The month was warmer than the average December, except over the northeast part of the country, and on the middle Pacific coast and the adjoining part of the plateau region. In the British Possessions north of Montana the mean temperature was more than 15° higher, and in the Saint Lawrence Valley and thence southward to the Maine coast it was more than 10° lower than usual. A notable feature of the month was the low temperature which prevailed over the extreme northeast part of the country, where the weather was colder than in any other section within the region of observation. The coldest weather in December commonly occurs in the extreme north-central districts. The severest cold wave of the month extended from Minnesota eastward over the Saint Lawrence Valley on the 2d, when the temperature fell below -25° in parts of Quebec, Ontario, and northwest Minnesota. On the 4th a cold wave prevailed east of the Rocky Mountains. On the 10th a warm wave extended from the Lake region to Missouri and Kansas, and thence to Manitoba. From the 19th to 22d unusually warm weather prevailed in Minnesota and the Dakotas. On the 31st one of the warmest periods on record for the season occurred in Arkansas, east Missouri, and Iowa. The highest temperature reported by a regular station of the Signal Service was 88°, at Brownsville, Tex., and by a voluntary observer, 92°, at Fort Ringgold, Tex. At stations in the middle and west Gulf states and the middle Missouri and Red River of the North valleys the maximum temperature was higher than previously reported for December. The lowest temperature reported by a regular station of the Signal Service was -27°, at Saint Vincent, Minn., and by a voluntary observer, -36°, at Orono, Me. The first killing frost of the season was reported at Monticello, Ga., on the 1st; at Little Rock, Ark., on the 4th; at Palestine, Tex., on the 8th; at Pensacola, Fla., on the 9th; at New Orleans, La., Savannah, Ga., Duke, Fla., and Red Bluff, Cal., on the 10th; at Villa City, Fla., and Charleston, S. C., on the 28th; and at Tampa, Eustis, Jacksonville, and near Titusville, Fla., on 29th.

The precipitation was deficient over a greater part of the country, the only sections in which an excess of precipitation was reported being the Canadian Maritime Provinces, southeast New England, southeast New York, Virginia, east Tennessee, west Pennsylvania, the south part of the southern

plateau, and the extreme north Pacific coast. The greatest excess above the average precipitation for December occurred on the extreme north Pacific coast, where it amounted to 7.60 inches at Neah Bay, Wash., and the excess was more than 4.00 inches at Cape Breton Island. The greatest deficiency occurred in south Alabama and south Mississippi, where it was more than 3.00 inches, and the deficiency was more than 2.00 inches along the Atlantic coast south of the 35th parallel and thence westward over the Gulf States to the 97th meridian, and on the Pacific coast between the 40th and 47th parallels. The monthly precipitation at Pittsburgh, Pa., 5.64 inches, was the heaviest ever reported at that station in December, the greatest amount previously noted for that month being 5.00 inches, in 1879. The least precipitation ever reported for December was noted in North Dakota, Minnesota, west and south Iowa, south Nebraska, and at Walla Walla, Wash. The greatest depth of snowfall, 86 inches, was reported at Blue Knob, Pa. The snowfall exceeded 70 inches along the line of the Central Pacific Railroad crossing the summit of the Sierra Nevada Mountains; 60 inches in northeast Pennsylvania; 50 inches in central New York; and 40 inches in south-central and southwest Maine, north New Hampshire, north-central Virginia, and southeast Ohio. At the close of the month over 30 inches of snow remained on the ground at points from central New York to southwest Maine, in the mountains of Pennsylvania, and in west-central lower Idaho.

Destructive gales prevailed over the Canadian Maritime Provinces on the 1st; over southeast Massachusetts on the 4th; at New York City on the 12th; at Grand Haven, Mich., on the 13th; on the Atlantic coast from North Carolina to Maine on the 17th, when great damage was caused to shipping and other property by high wind, and to seaside property by high seas; in the Lake region on the 23d, when one person was killed and several injured at Baberton, Ohio, and three persons seriously injured at Detroit, Mich., by falling buildings; on the north Pacific coast and in west Montana on the 25th, when considerable damage was caused to shipping, railroad, and other property; along the middle Atlantic and New England coasts on the 26th, when many disasters to shipping occurred; and in north Texas on the 31st. On the 8th a storm which presented the characteristics of a tornado passed over